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STATE OF NEVADA

1917
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BIENNIAL REPORT

OF THE

(STATE) BOARD OF HEALTH

For Period Ending December 31, 1916

S. L. LEE, M.D., Secretary



CARSON CITY, NEVADA

STATE PRINTING OFFICE

JOE FARNSWORTH, SUPERINTENDENT

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LETTER OF TRANSMITTAL

OFFICE OF
SECRETARY OF THE STATE BOARD OF HEALTH,
CARSON CITY, NEVADA, January 1, 1917.

To the Honorable EMMET D. BOYLE, Governor of Nevada.

SIR: In compliance with section 4 of an Act to create a State Board of Health, approved March 27, 1911, I have the honor to submit herewith my biennial report for the years 1915-1916.

Very respectfully,
SIMEON L. LEE, M.D.,
Secretary State Board of Health.

REPORT OF STATE BOARD OF HEALTH

At a meeting of the State Board of Health held in Carson City on the 12th day of July, 1914, the following letter was addressed to the Surgeon-General of the U. S. P. H. S. in Washington, D. C.:

CARSON CITY, NEVADA, July 12, 1914.

DR. RUPERT BLUE, *Surgeon-General U. S. P. H. S., Washington, D. C.*

GENERAL: The Nevada State Board of Health desires to present to the next Legislature a bill reorganizing the State Board of Health along the lines of greatest efficiency, and desires that the bill submitted to the Legislature may prove the best foundation for the future development of the board's activities.

To assist in this endeavor, the board at its last semiannual meeting instructed the Secretary to communicate with the Surgeon-General of the U. S. P. H. S., and request of him the detail of an experienced representative of his staff to study Nevada conditions in relation to public health administration and the present health activities of the State, and to embody the results of his investigations in a report to the State Board of Health, outlining plans for a reorganization of the public health activities of the State, such a report to be made the basis for future legislation.

S. L. LEE, *Secretary.*

On the 11th day of August, 1914, Dr. Blue replied as follows:

WASHINGTON, August 17, 1914.

DR. S. L. LEE, *Secretary State Board of Health, Carson City, Nevada.*

DEAR DOCTOR: My absence in New Orleans, on account of the plague situation, has caused some delay in replying to your letter of the 12th inst. requesting, on behalf of your board, an investigation of public health administration in Nevada.

It would be impracticable for me to comply with the request in the immediate future, since a number of States have previously made similar requests and must be given attention in the order in which they were received. In case there is no special need of haste for the investigation in your State, I shall be pleased to keep the request on file and comply with it as soon as the status of other investigations will permit.

Respectfully,

RUPERT BLUE, *Surgeon-General.*

On the 10th day of February, 1915, Dr. Blue sent the following:

WASHINGTON, February 10, 1915.

DR. S. L. LEE, *Carson City, Nevada.*

DEAR DOCTOR: I have had your letter of the 12th ultimo for some time and deferred replying in the hope that it might be practicable to send an officer to your State to make a study of health organization and administration. The previous requests from other States, however, and the limited number of officers available for this special duty have prevented me from doing so. From several weeks to several months are usually devoted to this kind of work in a State and the time of the officers so engaged has been more than occupied.

If it is your desire I would be pleased to bear this matter in mind and have an officer come to you for such time as may be necessary when the studies now going on shall have been finished. This will probably be within the next few months.

Respectfully,

RUPERT BLUE, *Surgeon-General.*

After about a year of waiting, the following letter was received from Dr. A. H. Glennan, Acting Surgeon-General:

WASHINGTON, June 17, 1915.

DR. S. L. LEE, *Secretary State Board of Health, Carson City, Nevada.*

DEAR DOCTOR: Referring to your letter of the 12th instant, I desire to state that it is expected to have in the near future Surgeon Carroll Fox proceed to Nevada for the purpose of making a study of public health organization and administration in that State as requested by you. Dr Fox is at present completing a similar study in Toledo, Ohio, from where he will go to Nevada.

Respectfully, A. H. GLENNAN, *Acting Surgeon-General.*

In the latter part of June Dr. Fox arrived in Nevada and commenced his study of the situation. The Secretary of the Board accompanied him to the various counties of the State. The result of Dr. Fox's investigation and study is embodied in the following report:

PUBLIC HEALTH ADMINISTRATION IN NEVADA

By Carroll Fox, Surgeon, U. S. P. H. S.

The following report contains the result of a study of public health administration and organization in the State of Nevada, carried on through a period of six weeks:

During the course of the investigation eight towns, representing seven counties, were visited, namely, Reno and Sparks in Washoe County; Elko, Elko County; Winnemucca, Humboldt County; Goldfield, Esmeralda County; Tonopah, Nye County; Carson City, Ormsby County; and Virginia City, Storey County.

Nevada is a State having an area of 109,821 square miles. Much of this vast territory is semiarid except in small areas, here and there, which have been brought under irrigation.

The chief industries of the State are: First, mining; second, cattle- and sheep-raising; and, third, agricultural pursuits in the irrigated districts and some dry-farming.

Notwithstanding its immense area, the State had a population in 1910 of but 81,875, and it is somewhat questionable whether there has been any very marked increase since then. It must be remembered that mining towns are subject to vicissitudes that change the prosperous community of today into the deserted village of tomorrow. Increased immigration into a new section frequently means emigration from an old section. No state census has been taken, and information obtained locally is purely a guess. The new International Year Book for 1915 gives Nevada a population of 98,726 as of July 1, 1915. This is an estimate based on the increase for the previous ten years. It is believed to be too high. At any rate, in computing death rates, etc., in the following report the population of 1910 is used.

There are no large cities in the State, Reno is the largest, with a population of approximately 11,000. All the principal communities have railroad communication, but, the State being a country of magnificent distances, to reach certain points may require one or two days.

For information and assistance received in the study, I am indebted to the Secretary and members of the State Board of Health, the local health officers, and other state and county officials.

Administration and Organization

As early as 1893 a law was enacted creating a State Board of Health and giving it rather comprehensive powers and duties of a public health nature, including the authority to promulgate and enforce regulations and providing a penalty for any violation thereof. Under this act the board of health, apparently not realizing the extent of the powers vested in it and being greatly

handicapped by a totally inadequate appropriation, accomplished little except of a purely emergency nature.

In 1911 a vital statistics law was enacted. This law was patterned after the model law, but in addition provided for the creation of a State Board of Health along the lines of the law of 1893 and specified that such board was supreme in matters relating to the public health. This was followed in 1915 by an amendment making certain diseases reportable and requiring that physicians maintain quarantine.

After the passage of this amendment the Board of Health, in July, 1915, promulgated its first comprehensive regulations for the suppression of disease.

Composition and Appointment of the Board. The Board of Health is composed of a President, a Secretary, and one other member. The President and Secretary are appointed by the Governor for a term of four years. Before being eligible for such appointment they must have been engaged in the regular practice of medicine in the State of Nevada for at least five years. This requirement does not apply to the third member of the board who is appointed by the Governor, the President and the Secretary.

Meetings. The State Board of Health is required to meet in Carson City on the first Tuesday in January and the first Tuesday in July of each year and at such other times as the President may deem advisable.

Duties and Compensation of the Members. The President is required to preside over all meetings of the board and to perform such other duties as may be determined by the board. He receives a per diem of \$20 for each day the board remains in session and necessary traveling expenses.

The Secretary is required to keep the minutes of all meetings of the board and to attend to all correspondence; to proceed immediately to any locality when called upon by the local health officer for the purpose of eradicating and preventing the recurrence of any epidemic; to investigate epidemics when called upon by the State Board of Health; properly to record and tabulate all vital statistics and to issue semiannual bulletins; to make a biennial report to the Governor and to compile the reports received from the various health officers.

The Secretary receives a salary of \$1,500 per year and is allowed the sum of \$300 a year for a stenographer and a sum not to exceed \$100 a year with which to provide a suitable office for the conduct of the affairs of the State Board of Health.

The third member of the board is required to attend all meetings of the board and to consult and advise with the board whenever called upon to do so. He receives a per diem of \$20 for each day's attendance at meetings and necessary traveling expenses.

Powers and Duties of the Board. The State Board of Health is declared under the statute to be supreme in all health matters, and it is empowered to remove any deputy or local health officer for any violation of the provisions of law. It is further empowered to "take cognizance of the interests of life and health among the inhabitants of the State"; to "make or cause to be made sanitary investigations and inquiries respecting causes of disease, especially of epidemic and contagious diseases and the means of prevention; to investigate the sources of mortality and the effect of localities, employment, habits and circumstances of life on the public health." The board is further empowered, upon request or when in its opinion the sanitary interests of the locality require it, to "advise with municipal, county, and township officers with regard to the location, drainage, water supply, heating and ventilation of public buildings, and the drainage and sewerage of towns and cities."

The Board of Health is likewise given the authority to promulgate and to enforce such regulations for the better preservation of the public health in contagious and epidemic diseases as it may judge necessary.

For refusing or neglecting to comply with any regulation of the board within five days after having received notice in writing, there is provided a fine of not

less than \$100, nor more than \$500, or imprisonment for not less than 50 days, nor more than 250 days.

It is made a duty of sheriffs, constables, and all peace officers to assist the Board of Health in enforcing the law and all rules, regulations, and requirements promulgated by it.

Under the law every incoming Governor has the power to change the composition of the entire board, including the Secretary. Experience has shown that effective public health work cannot be carried on by untrained men, and it is not conducive to efficiency to supplant at one time all of the experienced men by others who will, in all probability, lack that qualification. This statement applies most emphatically to the Secretary, who should receive his appointment from the Board of Health and whose tenure of office should be based on efficiency and not political expediency.

The Secretary. The present Secretary of the board is to all intents and purposes a full-time health officer, as he has given up practically his entire private practice. His salary is \$1,500 per annum, and because he performs his own stenographic work and his private office is the official office of the Board of Health he is permitted to retain the small fund allowed by law for stenographic services and office rent. There are not sufficient funds to employ capable assistants either in the office or the field, and when the manifold duties of a health department are vested in one man their accomplishment is difficult or impossible.

Epidemiological Activities

MORBIDITY REPORTS

Requirements of Law. The provisions of law requiring the notification of diseases are summarized as follows:

It is made the duty of the attending physician to report to the local health officer every case of scarlet fever, smallpox, diphtheria and membranous croup, typhus fever, typhoid fever, whooping cough, measles, chicken-pox, pneumonia, tuberculosis, bronchitis, acute anterior poliomyelitis, cerebrospinal meningitis, diarrheal diseases of children, cancer, puerperal septicemia, mumps, and Rocky Mountain (tick) fever.

For failure to report the same there is provided a fine of not less than \$100 nor more than \$500, or imprisonment for not less than 10 days nor more than 30 days, or both fine and imprisonment.

Requirements of Regulations. Acting on the above provision of law and other powers conferred upon it, the State Board of Health promulgated in July, 1915, certain regulations, of which the following is a summary:

It is the duty of the attending physician immediately to report to the local health officer all of those diseases mentioned in the law as reportable.

It is the duty of the local health officer daily to transcribe into the "Register of reportable diseases" all of the data furnished by the attending physician, as well as certain information relating to the date of placarding, the date of the establishment of quarantine, the date of the release of quarantine, the date of finding the first and second consecutive negative culture, the date of disinfection, etc.

The local health officer is required to transmit monthly to the Secretary of the State Board of Health the original morbidity reports received by him during the previous month.

Discussion. Previous to the passage of the above law and regulation, physicians had been submitting to the county health officers monthly statements of the communicable diseases under their care, and county health officers have been submitting to the state health officer monthly summaries of the cases of, and deaths from, communicable diseases occurring in the county during the previous month. These reports were greatly lacking in important information.

The present law is faulty in that it does not require householders or heads

of families to report diseases. The entire responsibility is placed on the physician. The law also neglects to state the time limit for reporting diseases. This has been provided for by regulation.

While the present law is not ideal, it is a great improvement over the old system, and its enforcement should result in securing more complete information regarding the prevalence of disease.

One of the most prevalent and fatal diseases occurring within the State is pneumonia. During the 12-months period ended June 30, 1915, it was reported from every county, there having been a total of 315 cases notified, with 69 deaths, for the entire State. This gives a death rate per 100,000 of 84.3, and a case fatality rate of 22 per cent. Of scarlet fever there were 185 cases reported, with 2 deaths, or a death rate per 100,000 of 2.44, and a case fatality rate of 1.08 per cent. There were 190 cases of typhoid fever reported, with 10 deaths, or a death rate per 100,000 of 12.2, and a case fatality rate of 5.26 per cent. The number of reported cases of diarrheal diseases of children was for the same period 481, with 27 deaths, or a death rate for 100,000 of 33, and a case fatality rate of 5.6 per cent. There were 10 cases of Rocky Mountain fever, with 4 deaths.

A study of the morbidity reports would justify one in concluding that, except for some of the minor communicable diseases, notifiable diseases were reported fairly well. A notable exception, however, is diphtheria. During the first six months of the period under consideration there were but 2 cases reported, with 1 death, and during the last six months not a case was reported, although an examination of the records of the hygienic laboratory for the same months shows that there were 9 positive cultures examined. Were the laboratory a part of the health department and therefore in close touch with all the activities of that department, the records of one could be made equally valuable to the other.

The Control of Disease

Requirements of Law. The following is a summary of the law providing for the establishment and maintenance of quarantine:

It is made the duty of every physician attending a case of scarlet fever, smallpox, diphtheria and membranous croup, whooping-cough, measles, chicken-pox, acute anterior poliomyelitis, cerebrospinal meningitis, diarrheal diseases of children, puerperal septicemia, or mumps, forthwith to establish and maintain a quarantine in conformity with the regulations promulgated by the State Board of Health.

Any physician who fails to establish and maintain such quarantine is liable to a fine of not less than \$25 nor more than \$100, or imprisonment for not less than 10 days nor more than 100 days, or by both fine and imprisonment.

Requirements of Regulations. In conformity with the above law, the State Board of Health at the meeting held July, 1915, promulgated certain regulations, of which the following is a summary:

For purposes of control notifiable diseases are classified as follows:

To Be Quarantined: Scarlet fever, diphtheria and membranous croup, smallpox, anterior poliomyelitis, and cerebrospinal meningitis.

To Be Placarded: Typhoid fever, diarrhea of children, chicken-pox, whooping-cough, mumps, and measles.

Reportable Only: Pneumonia, tuberculosis, bronchitis, typhus fever, Rocky Mountain (tick) fever, puerperal septicemia, and cancer.

It is made a duty of the attending physician in whose practice a case of communicable disease has occurred to instruct the family as to how the spread of the disease may be prevented and to furnish a copy of the rules and regulations of the State Board of Health governing quarantine.

Quarantine is established by serving a written notice, signed by the local health officer, upon the head of the household and placarding the

house with a card bearing the word "Quarantine," and a statement to the effect that persons are forbidden to enter or leave the premises.

It is made a duty of the attending physician, when delegated by the local health officer, to establish and maintain quarantine by serving the notice and placarding the house.

Notices are served in duplicate, the original being left with the householder and the duplicate being returned to the local health officer, signed by the person serving the notice, who is also required to indorse thereon certain data relative to the date and hour served, etc.

All pet animals must be excluded from rooms occupied by infected persons in quarantine. Upon the completion of quarantine it is required that all rooms occupied by infected persons and all bedding, clothing, or other articles contained therein be disinfected.

It is made a duty of the attending physician, when delegated by the local health officer, to perform the necessary disinfection.

No letters or other articles may be mailed without permission from the local health officer. Provision is made for disinfecting such letters before mailing.

No person is permitted to enter or leave premises under quarantine except as specially provided for by the rules and regulations.

Adults and children who have previously had the disease may be permitted to leave quarantined premises, but may not reenter until the quarantine is raised, except in the case of smallpox, when no unvaccinated person may be released before the end of the quarantine, and in the case of diphtheria, when no person in whose throat virulent bacilli are found may be released before the end of the quarantine period.

Where possible, persons suffering from a quarantinable or placardable disease should be rigidly isolated, in a suitable room, from other members of the household, and all dishes, bedding, and the like, and the secretions from the patient's throat and nose must be disinfected before being removed. Where the conditions are such as to render the taking of proper precautions difficult or uncertain, the local health officer may apply to the local board of health for an order to remove the patient to the isolation ward of the county hospital.

The sale of milk or dairy products from quarantined or placarded premises is prohibited unless in the opinion of the local officer the conditions are such that the products can be kept free from contamination.

Wage-earners may be permitted to attend to their usual vocation when they are protected by either a natural or acquired immunity or, in the case of diphtheria, when a negative culture has been obtained from the nose and throat; provided, that the patient is properly isolated, that proper precautions are taken to change the clothes when entering or leaving the house, and that the wage-earner is not engaged in any business which brings him in contact with children.

Scarlet Fever. Quarantine must be maintained until the complete recovery of the patient, including recovery from all sequelæ of the disease. If the disease terminates in death or the patient be removed from the premises, the quarantine may be released, except that where there are susceptible children present, it must be maintained for five days following the death or removal. Under no circumstances may quarantine be released until after the disinfection of the patient and room.

Diphtheria—Quarantine must be maintained until two successive negative cultures from the nose and throat, taken not less than 24 hours apart, are reported to the local health officer from the hygienic laboratory.

If the bacilli persist in the throat or nose after a period of 28 days

a virulence test may be made. The presence of a nonvirulent organism is considered equivalent to a negative culture.

Where the cultural method for the release of quarantine is not used, quarantine must be maintained for 28 days from the beginning of the last case on the premises.

If the disease terminates in death or the patient is removed from the premises, the quarantine may be released except where there are susceptible children present, when it must be maintained for 7 days longer. However, if the children have recently received immunizing doses of antitoxin and one negative culture has been obtained from the nose and throat, quarantine may be raised.

In no case may quarantine be raised until the proper disinfection has been performed.

Smallpox. Quarantine must be maintained until the complete recovery of the patient as determined by the disappearance of all crusts.

Contacts may be released after disinfection if they have had smallpox or if they have been successfully vaccinated within three years.

In no case may quarantine be raised until the proper disinfection has been performed.

If the disease terminates in death or the patient is removed, quarantine must be maintained for two weeks from the date of death or removal.

Cerebrospinal Meningitis and Anterior Poliomyelitis. Quarantine must be maintained until the recovery of the patient from the acute symptoms.

When the disease terminates in death or the removal of the patient, quarantine may be released after 10 days from the date of death or removal.

In no case may quarantine be raised until the completion of the required disinfection.

Disinfection. The regulations go into detail as to the kind of disinfectant and the method of the application.

For the disinfection of the body, a 2 per cent solution of carbolic acid or a 1-to-3,000 solution of bichloride of mercury is required.

For room disinfection it is required to use for every 1,000 cubic feet:

Formalin (40 per cent formaldehyde).....	11 ounces
Water	11 ounces
Potassium permanganate (fine crystals).....	9 ounces

Placarding. By placarding is meant posting on the infected premises a card containing the word "Warning," and a statement that persons may not enter the premises.

It is the duty of the local health officer to placard, or he may delegate the physician or any peace officer to do the same.

Persons under the age of 21 living in a house where there is a case of chicken-pox, measles, or whooping-cough, are prohibited from attending any school, church, or Sunday-school, or public gathering of any sort.

Chicken-Pox. Local health officers must satisfy themselves that a mild case of smallpox has not been erroneously diagnosed as chicken-pox.

Placards must remain on the house until 21 days from the date of onset to the last case on the premises.

Measles. If there are other susceptible persons on the premises, the placard must remain posted for three weeks from the date of onset of the last case on the premises. If not, placards may be removed at the end of two weeks from the date of onset.

Mumps. The placard must remain posted on the premises for three weeks from the date of onset of the last case.

Whooping Cough. The placard must remain posted on the premises for six weeks from the date of onset of the last case.

Typhoid Fever and Diarrhea of Infants. The placard must remain posted until complete recovery of the patient.

It is made a duty of the attending physician to instruct the nurse or attendant to disinfect the feces and urine by mixing a cupful of chloride of lime with each passage and allowing the disinfectant to stand in contact with the excreta for one hour before being disposed of.

If in the opinion of the local health officer the discharge of the above duty is difficult or unsatisfactory, he is required to apply to the county board of health for an order to remove the patient to the isolation ward of the county hospital.

Discussion. These regulations have been in effect such a short time that it is impossible to state what practicable results may have accrued from their enforcement. However, they will certainly make quarantine procedure uniform throughout the State, a thing greatly to be desired.

On account of peculiar local conditions the responsibility of establishing and maintaining quarantine and giving the necessary instructions to prevent the spread of the disease has been to a large extent placed with the attending physician. Until more efficient local health departments can be secured this is probably a wise provision. However, one must not expect too much from the best regulations unless they are enforced by a skilled health officer with the invaluable assistance of his epidemiologist and public-health nurse.

It is thought that in the regulations too much stress is laid upon the necessity for terminal fumigation as compared with the more important disinfection of discharges during the course of the disease.

It is also thought that the penalties imposed against the physicians are rather great and that there should be a penalty provided for any person who violates any provision of the regulations.

Rabies. Rabies is becoming a serious menace to the people of some sections of the State of Nevada. It is supposed to have been introduced from Idaho, where some one, believing that the coyote could be exterminated by inoculating with rabies virus, attempted the experiment, with the result that the disease has spread over several States. Dogs and a number of persons have been bitten.

The State Board of Health of Nevada, appreciating the danger, recommended to the municipalities in the presumably infected zone that all dogs be muzzled. The towns passed the necessary ordinance, and it was satisfying to note that in Winnemucca and Elko the ordinance was being enforced. The State Board of Health has requested the cooperation of the Biological Survey, which has promised to place a hunter in the field.

The Pasteur treatment is administered at the Hygienic Laboratory of the University, antirabic virus being obtained from the United States Public Health Service.

The Common Drinking Cup. In addition to the regulations summarized above, the State Board of Health has promulgated regulations abolishing the common drinking cup and common towel on vehicles of common carriers in intrastate traffic and also providing for the cleanliness and purity of ice water or both ice and water used on such vehicles.

Hygienic Laboratory

The Hygienic Laboratory was established in 1909 by legislative enactment to aid physicians and health officers in the diagnosis of "infectious" diseases and for research into the nature, cause, and control of such diseases.

Since its inception, the laboratory, in addition to assisting in the diagnosis of communicable diseases, has made bacteriological examinations of milk and

water as well as sanitary surveys in connection with town water supplies, and has carried on epidemiological studies in the case of typhoid fever, dysentery, and other diseases. The laboratory has, in fact, been assuming the functions of a health department, and yet for purposes of administration it was placed under the control of the Regents of the University of Nevada, instead of being made a part of the State Board of Health, to which it logically belongs.

There is by accident, so to speak, a remote connection between the laboratory and the board of health, in as much as the bacteriologist of the laboratory was appointed third member of the board.

The laboratory is under the immediate direction of a veterinarian, the professor of veterinary bacteriology at the University. He receives, in addition to his regular salary, \$600 from the laboratory fund. There is also employed a full-time bacteriologist, who receives \$2,400 per year and upon whom falls the actual work of the bacteriological examinations, as well as of the field investigations. There is one laboratory attendant employed. To defray the expenses of the laboratory there are appropriated \$5,000 per year.

During the last year and a half the work of the laboratory has greatly increased, there having been made 777 examinations in 1914, representing a cost per examination of \$6.43. This is a marked improvement over previous years, as in 1913 there were made 386 examinations, at a cost per examination of \$12.95, and in 1912 but 276 examinations, at a cost per examination of \$18.11. During the first half of the present year (1915) there were made 1,147 examinations, representing a cost per examination of but \$2.17. Thus, with the completion of the year 1915, the cost per examination will approximate a figure more consistent with economical maintenance.

Previous to 1914 the official work of the laboratory was confined almost entirely to the diagnosis of typhoid fever, tuberculosis, diphtheria, and malaria, with the occasional examination of samples of milk and water. Since that time its scope has been greatly increased and made to include Wasserman reactions, examinations of pus, blood, etc., the manufacture of typhoid and autogenous vaccines, and in fact many other laboratory facilities have been extended to the practicing physicians and health officers, all of which explains the increasing desire on the part of the physicians to avail themselves of the opportunities offered.

The laboratory furnishes outfits for the submission of samples for examination and reports to physicians the results of such examinations by telephone or telegraph when requested or practicable, as well as by regular report cards, keeping a proper file for future reference.

From the standpoint of the public health the Hygienic Laboratory can never be of the greatest value to the State until it is made a part of a properly organized health department. It is to be hoped, therefore, that the next Legislature will desire to see its state health organization strengthened so that it will be, though small, at least equal in efficiency to that of other States, and capable of acting along modern lines. A reorganization with this end in view would mean the formation of a state health department and a transfer of that most necessary and important adjunct, the laboratory and its equipment, from the control of the Board of Regents of the University to the control of the Board of Health of the state department of health.

It is hopeless to expect to eradicate the preventable diseases, the control of which is the entire function of a health department, until all the forces engaged are correlated and placed under one controlling head.

Public Health Engineering

Activities along this line of public health have been sadly neglected in Nevada, principally because the State Board of Health has never had sufficient funds to employ the necessary expert assistants to carry on the work.

There is indeed little law governing public or private water supplies used for domestic purposes or controlling sewerage systems, although the Board of Health is empowered to advise with local authorities in regard to the drainage and

sewerage of towns and cities and could, under the provisions of law empowering it to investigate the causes of disease, make the necessary surveys of water supplies.

An effort has been made on the part of the Hygienic Laboratory to carry on sanitary surveys of water supplies, but without the services of a sanitary engineer the results obtained are not likely to be entirely satisfactory.

In a recent inspection made by the writer of several towns in the State, the great need for sound advice in connection with local sewerage systems was most apparent. There was hardly a town inspected that did not have its sewerage problem, in the solution of which a sanitary engineer from the state health department would have been of the greatest assistance at no expense to the locality. In fact, the advisory and supervisory assistance that such a state official would be able to give would frequently result in a great saving of money to the community.

Every town visited is sewered. In two instances the sewage is passed into a river untreated. In two instances the sewage flows into a river after passing through a septic tank. In neither instance did the septic tank seem to be carrying out its function properly. In three instances the sewage passed into the sands of the desert—apparently a more or less satisfactory method of disposal. In one instance the sewage is used for irrigating.

In general it may be said that the water supplies of the different communities are comparatively pure. They are all owned by private corporations. A proper supervision over these supplies, so that their purity may be maintained should be exercised by the State Board of Health. This matter is easy to control at the present time while the population is sparse, but as irrigation projects are completed and the rural population of a permanent nature increases, the water and sewerage problems will become much more difficult to handle.

The methods used for the collection and disposal of garbage in the different communities are primitive and would bear investigation by a state sanitary engineer.

There is a state law which provides for the abatement of nuisances in unincorporated towns. It is summarized as follows:

"For the purpose of the act nuisances are deemed to consist of permitting filth heaps, garbage, unprotected sewerage or drainage pipes or boxes, cesspools, etc., and such other nuisances as may be specified by the state or county board of health, to remain unabated after due notice has been given to abate or remove the same."

The law further states the method of procedure in order to secure the abatement of a nuisance, and in the event of an order not being obeyed authorizes the local authorities to abate the nuisance and charge the cost as a lien against the property.

Registration of Births, Deaths, and Marriages

The registration of births and deaths is carried out under the provisions of an act passed in 1911. As this act conforms closely to the model law proposed by the Bureau of the Census, it is not thought necessary to summarize it here.

The state health officer is state registrar of births and deaths, and the county health officers are local registrars. The local registrars regard the practicing physicians of the county as deputy registrars, but few have officially received the appointment as such, and these would, therefore, not be entitled to any fees allowed by law.

To expedite the business of registration and increase the returns it would seem advisable to appoint a number of deputy registrars for each county.

During the year 1914 there were registered 963 deaths (exclusive of stillbirths), which gives a death rate for the State of 11.7.

It is generally believed by local registrars that practically all of the deaths are certified, that the practicing physicians are conscientious in fulfilling this obligation to the State, and that a death, even though it may occur far removed from the centers of population, is sooner or later brought to the attention of the registrar.

During the year 1914 there were 1,327 births registered, exclusive of stillbirths. This gives a birth rate of 16.2. The low birth rate is not inconsistent with local conditions. The conditions incident to mining camps are such that there is always a large preponderance of unmarried males comprising the population. It is quite unfair to compare either the birth or the death rate of a State like Nevada with the rates of the more settled agricultural communities.

During the year 1914 there were registered 95 deaths in children under 1 year (exclusive of stillbirths), which, compared with 1,327 births for the same period, would give an infant mortality of 71.5.

Of 963 deaths registered in 1914 fully 408, or 42.2 per cent, should be classed as preventable, and should therefore receive the attention of the health department.

Report of Marriages. There is a provision of law which requires that County Clerks transmit to the Secretary of the State Board of Health on or before the 10th day of January and the 10th day of June of each year the number of marriage licenses issued by them during the preceding six months.

Tabulation of Information Relating to the Registration of Births, Marriages, and Deaths, State of Nevada, 1914

Counties	Population (estimated)	Area, square miles	Number of registrars	Number of deputy registrars	Number of physicians	Number of embalmers	Number of birth certificates†	Number of death certificates†	Number of marriages	Stillbirths
Churchill	2,811	5,050	1	0	5	1	54	46	34	1
Clark	3,221	8,045	1	0	4	1	81	35	37	1
Douglas	1,895	733	1	0	5	0	44	11	19	1
Elko	8,133	17,059	1	0	8	2	161	87	65	2
Esmeralda	7,869	7,432	1	0	6	1	91	65	38	4
Eureka	1,630	4,157	1	0	1	1	27	17	8	1
Humboldt	6,825	15,857	1	1	12	3	103	54	54	3
Lander	1,786	5,721	1	0	2	1	23	23	7	0
Lincoln	3,489	10,511	1	0	4	1	47	30	0	1
Lyon	3,568	1,500	1	0	5	1	61	48	36	2
Mineral	1,500	(*)	1	0	5	1	11	19	17	0
Nye	7,513	18,294	1	1	9	4	121	78	88	1
Ormsby	3,415	156	1	0	6	4	33	51	38	1
Storey	3,045	251	1	0	1	1	33	50	12	0
Washoe	17,404	6,251	1	1	40	6	233	271	249	5
White Pine	7,441	8,795	1	0	8	2	154	78	76	6
Totals	81,875	109,821	16	3	121	30	1,327	963	778	29

*Not known. †Exclusive of stillbirths.

Local Health Authorities

Requirements of Law. The requirements of laws relating to the appointment of local boards of health and local health officers are summarized as follows:

The county board of health consists of the county physician, the sheriff, and the board of county commissioners. The county physician acts as chairman.

The board of health acts in conjunction with, and under the supervision of the State Board of Health.

The duties of the county board of health are to "oversee all sanitary conditions" of the county and to "supervise, control, and enforce such health regulations as will best subserve the health and cleanliness" of the county.

In cases of emergency where immediate action is necessary, the county board of health may act independently of the State Board of Health, reporting its action at once to that board.

For neglecting to comply with any regulations as contemplated above, within five days after receiving notice in writing, there is provided a fine

of not less than \$50 nor more than \$200, or imprisonment for not less than 25 days nor more than 100 days, or both fine and imprisonment.

The board of county commissioners is required to appoint a county health officer to act for a period of not less than one year, who only may be removed for incompetency.

The duties of the county health officer are to act as local registrar and to record cases of the communicable diseases reported by physicians.

For collecting and compiling the vital statistics of the county, the local registrar must be given by the county a salary of not less than \$25 per month.

With the approval of the county commissioners, the local health officer may appoint one or more deputy health officers, who are entitled to a salary of not less than \$25 per month, or in lieu of such, a fee of \$1 for each birth and death certificate executed by them.

Discussion. There are 16 counties and in each county there is a county health officer, who receives a salary of from \$25 to \$50 per month for his services as county registrar, but no salary as health officer. Frequently the county health officer is also county physician and receives an additional compensation for his services in that capacity.

As health officer the duties are not onerous, and consist of the registration of births and deaths, the recording of morbidity reports, and in a general supervision of the communicable diseases. In a few instances the health officer attempts some supervision over the milk supply and in a small way some health supervision of schools.

In Reno, the largest city in the State, there has been created a board of health consisting of three members, each of whom has assumed certain duties. One is health officer, one secretary, and one milk inspector. In this way certain functions of a health department are carried out.

Few of the towns are incorporated. The county health officer usually acts as health officer for the whole county.

If the small population of the State were concentrated, one full-time health officer would be sufficient. It is not, however. It is divided up into small but important and prosperous communities, which are scattered over an immense area.

Taking into consideration the public health needs of the State as a whole, its great size, transportation facilities, and the importance, prosperity, and location of its various centers of population, it would seem advisable to divide the State into not less than four districts, in each of which should be placed a full-time health officer to assume the responsibility of enforcing all public health laws and regulations within his district. Provisionally, the State might be divided as follows:

District No. 1:

Washoe County.
Storey County.
Ormsby County.
Lyon County.
Douglas County.
Mineral County.

District No. 2:

Humboldt County.
Churchill County.
Lander County.

District No. 3:

Elko County.
Eureka County.
White Pine County.

District No. 4:

Nye County.
Esmeralda County.
Lincoln County.
Clark County.

The salary and expenses of the district health officer could be paid by the different counties comprising the district without placing much of an extra financial burden on any one community.

For instance, at the end of the year 1914, Elko county had a balance, after all debts were paid, of approximately \$250,000, Humboldt County a balance of

approximately \$48,000, Nye County a balance of approximately \$90,000, Ormsby County a balance of approximately \$26,000, Storey County a balance of approximately \$9,400, Washoe County a balance of approximately \$290,000, and White Pine County a balance of \$80,439.

County and deputy health officers would have to be appointed as under the present law, as well as a deputy health officer in each town, who need not necessarily be a physician. They would act in their present capacity as local registrars and would assist the district health officer in emergencies and keep him informed of the conditions in, and the needs of, the locality.

In the course of time it would be advisable for the State to assume the whole, or at least a part, of the expense of the district health organization. At present, taking into consideration the State's limited means, it is probably better that the expense be defrayed by the counties comprising the district. This expense might also be paid in part by money from the school fund, for the reason that much of the time of the district health officer and his public-health nurse would be occupied in the health supervision of the public schools, especially the rural schools within the district.

The Control of the Milk Supply

The enforcement of state law and regulation relating to the purity of the milk supply has been placed in the hands of the State Commissioner of Food and Drugs, whose division is in the Public-Service Division of the University of Nevada.

The law further specifies that it is unlawful to sell impure, adulterated, or unwholesome milk, and provides a fine for violation of not less than \$100, or, if the fine is not paid, imprisonment for not less than 30 days.

The law further specifies that milch cows must not be kept in a crowded condition or unhealthy, and that they must not be fed on any food that produces impure, diseased, or unwholesome milk, and that milk that has any portion of its cream removed must not be sold except as skim milk.

It is also declared unlawful to add any water to milk or to feed milch cows on distillery waste or garbage. A fine is provided the same as above for any violation of this provision.

The Food and Drug Commissioner has set a standard for milk which requires at least 3.25 per cent of milk fat, 11.75 per cent of total solids, and 8.5 per cent of solids not fat.

A circular has been issued to consumers telling them how to care for milk after it has been delivered by the dealer.

Producing farms are scored, using a score-card similar to that in use by the United States Department of Agriculture.

There is but one inspector employed by the Food and Drug Commissioner, who carries on all of the field work entailed in the enforcement of the food and drug law. A few municipalities, through their health officers, are making a special effort to improve the milk supply and with some success. However, most of the municipalities depend entirely upon the efforts of the Food and Drug Commissioner.

As stated in previous reports, it is highly desirable that the sanitary control of milk supplies be placed in the hands of the State Board of Health. Municipal health inspectors are practically always a part of the local health department, and their work could be made much more effective if they acted in conjunction with the state health department, a body which should be in the position to give advice to, and supervise the work of, the local organizations.

The sanitary control of the milk supply has two objects in view, the preservation of the purity of milk as such, as well as the purity of the products made from milk, as, for instance, butter and cheese. From the standpoint of the public health, the former is the more important because of the frequent association of a contaminated milk supply with outbreaks of certain of the communicable diseases and high mortality among infants. The prevention of deaths from this cause is, therefore, essentially a duty of the health department, which is

authorized by the Legislature to promulgate and enforce regulations for the better preservation of the public health.

It cannot be successfully contended that because the statute has intrusted to a particular board the general supervision of the milk supply, by implication it has forbidden the state health department from taking such action in regard to milk as may preserve the health of the people of the State. Such action would mean the promulgation and enforcement by the State Board of Health of regulations not in conflict with those already existing, thereby making it possible to work in close cooperation with such other state organizations as may be striving to secure better and cleaner milk.

Appropriations

The value of the total assessable property in the State for 1915 is estimated at \$152,000,000. The tax levy for 1915 is fixed at 56 cents on each \$100 of assessed valuation. This would give a revenue of approximately \$850,000. If to this amount there be added the sum of \$250,000, which is the income from liquor licenses, sundry receipts, etc., the total receipts of the State will be found to be \$1,100,000.

Out of this sum there is allowed for public health a total of \$8,250 per year, as follows:

The Hygienic Laboratory.....	\$5,000
The salary of the Secretary of the Board of Health.....	1,500
General expenses of the Board of Health.....	1,750
Total	<u>\$8,250</u>

This figure represents but three-fourths of 1 per cent of the total receipts of the State, whereas, estimating the amount that should be annually appropriated to public health on the 2 per cent basis, there would be allowed not less than \$22,000.

It is thought possible to organize a state department of health for Nevada, capable of carrying on its functions satisfactorily for several years at least, without at present asking for a sum as large as that mentioned above, or \$22,000. It is suggested that for the present at least \$8,000 a year more than the present appropriation, or \$16,250, would enable the State to have a small but efficient state health organization.

The appropriation would then be divided about as follows:

Salary of Secretary.....	\$2,500
Salary of epidemiologist.....	2,400
Salary of sanitary engineer.....	2,000
Salary of bacteriologist.....	1,500
Salary of one laboratory attendant.....	600
Two clerks at \$900 each.....	1,800
General expenses, including maintenance of laboratory, traveling expenses, stationery, etc.....	5,450
Total	<u>\$16,250</u>

This figure represents less than 1½ per cent of the total available revenues, and is extremely small when compared to the state aid to public schools, which amounts to \$247,000, or over 22 per cent, and the appropriations to the University, which amounts to \$145,000 (exclusive of the public service department), or over 13 per cent of the total available revenues.

Recommendations

As a result of the study of health administration in Nevada and a careful consideration of the public health needs, one cannot but arrive at the conclusion that a well-organized department of health is necessary. This would mean a strengthening of the present board of health and a correlation of the various public health activities which are now being carried on by different state

organizations. The present system in Nevada, as well as in many other States, results in making a plaything of the public health rather than a problem to be looked upon seriously.

In order that the necessary reorganization may be accomplished and the State Board of Health put in a position to conserve the health of the people, the following recommendations are made:

1. That the number of members forming the State Board of Health be increased to five and that the term of office be five years and so arranged that there will be but one change each year.

2. That the Secretary be appointed by the Board of Health to hold office during efficiency and to be discharged only for cause. That he be prohibited from engaging in the practice of medicine or any other business except that in connection with his official work.

3. That the name of the present state health organization be changed to the State Department of Health.

4. That the present Hygienic Laboratory and its equipment be transferred from the Public Service Division of the University of Nevada to the State Department of Health.

5. That the work of this laboratory be subdivided into two parts, namely, diagnostic, and water and sewage.

6. That for the purpose of administration the State Department of Health be subdivided as follows:

The board of health.

The executive office, or office of the Secretary.

The bureau of epidemiology.

The diagnostic laboratory division.

The bureau of sanitary engineering.

The water and sewage laboratory division.

The bureau of statistics.

7. That the Secretary of the Board of Health be the state health officer, having general charge of the State Department of Health, and act as chief of the bureau of statistics.

8. That additional officers and employees be employed in the State Department of Health as follows:

One epidemiologist.

One laboratory attendant.

One sanitary engineer.

Two clerks.

One bacteriologist.

9. That the epidemiologist be chief of the bureau of epidemiology, and have general supervision over the epidemiological work of the department, the morbidity reports, the diagnostic laboratory, and the district health officers.

10. That the sanitary engineer be chief of the bureau of sanitary engineering and have general supervision over the water and sewage laboratory, and water supplies, sewerage systems, garbage-disposal systems, and disposal of trade wastes within the State.

11. That the bacteriologist be made responsible for the bacteriological work performed in the laboratory.

12. That there be appropriated annually a sum of not less than \$16,250 to be spent as follows at the discretion of the Board of Health:

Secretary	\$2,500
Epidemiologist	2,400
Sanitary engineer.....	2,000
Bacteriologist	1,500
Laboratory attendant.....	600
Two clerks.....	1,800
General expenses of the department, including maintenance of the laboratory, traveling expenses, etc.....	5,450

Total\$16,250

13. That the State be divided into not less than four districts at the discretion of the State Board of Health.

14. That in each district there be placed a full-time district health officer.

15. That the district health officers be appointed by the State Board of Health and made responsible to the Secretary of the State Board of Health; that they be graduate physicians; that they hold their office during efficiency and good behavior, and that they be prohibited from engaging in the private practice of medicine.

16. That they be held responsible for the enforcement of all health laws and regulations and be given general supervision over the work of local health officers, within their respective districts.

17. That the salary and office and traveling expenses of each district health officer and the salary of one public-health nurse for each district be paid proportionately by the counties comprising the district.

18. That duties of the district health officers be defined by the State Department of Health and include health supervision of schools, the sanitary control of the milk supply, supervision over the communicable diseases, enforcement of the law requiring registration of births and deaths and the notification of preventable diseases, and the dissemination of popular public health information and the like.

19. That the public-health nurse perform such duties as may be assigned to her by the district health officer.

20. That county health officers be appointed as under the present law.

21. That more deputy health officers be appointed, who need not necessarily be physicians.

22. That both county and deputy health officers, in addition to acting as local and deputy registrars, be regarded as assistants to the district health officers, to act and assist them in emergencies and to keep them informed of the conditions and the needs of the locality.

23. That when practicable more efficient laws and regulations be enacted for the collection of morbidity reports, the control of disease, the control of water and sewage systems, and the sanitary control of the milk supply by the State.

RABIES

Rabid coyotes made their appearance in Humboldt County during the summer of 1915, and so rapid was their increase, so wide-spread their incursions, and so great was the loss of live stock through their agency in the latter part of 1915 that the whole northern tier of counties was menaced and the citizens in the wildest state of excitement.

In the meantime rabid coyotes, dogs, and skunks had made their appearance in California, Oregon, Montana, and Idaho.

Hoping for Federal aid in the destruction of the coyote and other predatory animals, the following States appealed to the Surgeon-General of the U. S. P. H. S. to issue a call for a conference to discuss the grave problem confronting the Rocky Mountain and Pacific Coast States, whereupon Dr. Blue issued the following call:

TREASURY DEPARTMENT,
BUREAU OF PUBLIC HEALTH SERVICE,

WASHINGTON, January 6, 1916.

SIR: In accordance with the requests received from seven Rocky Mountain States (California, Idaho, Montana, Nevada, Oregon, Utah, and Wyoming), and under authority of section 7 of the Act of Congress, approved July 1, 1902, a conference for the purpose of considering rabies, Rocky Mountain spotted fever, and other public-health matters will be held in Salt Lake City, Utah, at 10 a. m., February 2, 1916.

In addition to the States which have joined in the request for a conference,

an invitation is extended to every State and Territory desiring to be represented to send one delegate each. I will be pleased to be informed of the name of the delegate selected to represent your State.

Respectfully,

RUPERT BLUE, *Surgeon-General.*

Dr. S. L. Lee, Secretary of the State Board of Health, was named as the delegate from Nevada, and upon his return from Salt Lake made the following report to his Excellency, Emmet D. Boyle, Governor of Nevada, summarizing the proceedings of the conference:

CARSON CITY, NEVADA, February 14, 1916.

To His Excellency, EMMET D. BOYLE, Governor of Nevada.

SIR: As representative delegate of the Health Department of Nevada to the Interstate Conference held in Salt Lake City, Utah, on the second day of February, 1916, convened under the call of Dr. Rupert Blue, Surgeon-General of the United States Public Health Service, and at the request of the Boards of Health of California, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming, I herewith submit to your Excellency the following brief synopsis of the proceedings:

The object of the conference was to consider four grave problems now confronting the Western States and menacing the public health, namely, rabies, Rocky Mountain (tick) fever, indigent migratory tuberculosis patients, and defective railroad sanitation.

The conference was called to order by Dr. John W. Kerr, Assistant Surgeon-General of the United States Public Health Service, in the chamber of the House of Representatives, at 10:20 o'clock a. m., February 2, 1916.

There were delegates from nine State Boards of Health, and three departments of the United States Government—health, biological survey, and animal industry—national and state woolgrower's associations, sheep and cattlemen's associations of Idaho, Nevada and Utah, and several railroad companies were also well and ably represented.

Dr. Kerr, upon taking the chair, paid a high compliment to the State of Utah, and to her Commissioner of Health, Dr. T. B. Beatty, whom he had known, he said, for the past ten years, and regarded him as one of the best health officers in the country.

At the request of the chairman Dr. Beatty introduced Governor Spry of Utah, who was received with the most hearty applause by the conference.

The Governor said: "I know that this is a big problem, that eradication of diseased coyotes cannot be accomplished all at once. It will not be a mere matter of months; it will no doubt take much longer. I am glad to say that Senator Smoot of Utah secured a special appropriation of \$75,000, but I realize that much more money will be needed."

"An ounce of prevention is worth a pound of cure" was quoted by the Governor in saying that, while Utah had not been entered by the malady, she desired to help fight it, and in conclusion he pledged the aid of all state departments in the work.

At the close of Governor Spry's address, Chairman Kerr appointed the following members as Committee on Resolutions: Dr. W. C. Woodward, Washington, D. C.; Dr. T. B. Beatty, Utah; Dr. T. D. Tuttle, Washington; Dr. F. F. Gundrum, California; Dr. L. D. Fricks, Washington, D. C.

Those present at the conference were:

STATE HEALTH BOARD DELEGATES

California.....	Dr. F. F. Gundrum, California State Board of Health
Idaho.....	Dr. E. E. Laubaugh, State Bacteriologist
Kansas.....	Dr. J. J. Sippy, State Epidemiologist
Montana.....	Dr. W. J. Butler, State Veterinarian
Nevada.....	Dr. S. L. Lee, Secretary State Board of Health

Oklahoma.....	Dr. John W. Duke, State Health Commissioner
Oregon.....	Dr. David N. Roberg, Secretary State Board of Health
South Dakota.....	Dr. W. E. Daniels, Vice-President State Board of Health
Texas.....	Dr. B. M. Worsham, Vice-President State Board of Health
Utah.....	Dr. T. B. Beatty, Secretary State Board of Health
Washington.....	Dr. T. D. Tuttle, State Health Commissioner
Wyoming.....	Dr. W. A. Wyman, Secretary State Board of Health

GUESTS

Dr. A. K. Fisher.....	Chief of Biological Survey
E. R. Sans.....	Biological Survey in Nevada
George E. Holman.....	Biological Survey in Utah
L. B. Crawford.....	Biological Survey in Colorado
T. R. Crowder.....	Pullman Company
J. A. Denny.....	Chicago, Burlington and Quincy
Dr. F. S. Bascom.....	Denver and Rio Grande
Howard Elliott.....	Salt Lake Route
Dr. H. J. Hammond.....	Bureau of Animal Industry
Dr. F. E. Murray.....	Bureau of Animal Industry, Salt Lake
Dr. S. W. McClure.....	Secretary National Woolgrowers Association
Thomas Austin.....	National Woolgrowers Association
A. A. Callister.....	Secretary State Board of Sheep Commissioners
C. B. Stewart.....	Secretary Utah Woolgrowers Association
James H. Moyle.....	National Woolgrowers Association, Salt Lake
W. N. McGill.....	Member of Rabies Commission of Nevada and National Woolgrowers Association
George Russell, Jr.....	Member of Rabies Commission of Nevada and National Woolgrowers Association
A. E. Kimball.....	Elko, Nevada
C. DuBois.....	Bureau of Forestry
L. F. Kneipp.....	Forestry Service
C. Busolse.....	District Forester, Headquarters San Francisco
J. V. DeLaney.....	Legal Adviser Department of Agriculture
A. F. Doremus.....	Member Utah State Board of Health
Dr. Fred Stauffer.....	President Utah State Board of Health
Dr. H. K. Merrill.....	Member Utah State Board of Health
Dr. George W. Clark.....	Springville, Utah
Dr. E. G. Gowans.....	State Superintendent of Public Instruction
J. J. Craner.....	Corinne, Utah
Dr. A. C. Young.....	State Live Stock Inspector
B. A. Vance.....	Fairview, Utah
W. J. Seeley.....	Salt Lake, Utah
C. F. Emery.....	Agent Utah State Board of Health
S. E. Pyper.....	Field Superintendent in Charge of the Destruction of Predatory Animals
E. F. Averill.....	Oregon, Inspector
Dr. Hardie Lynch.....	City Bacteriologist of Salt Lake City
H. J. Pack.....	Salt Lake
Dr. S. G. Paul.....	City Health Commissioner of Salt Lake

The first subject brought up for discussion was that of rabies.

The region infected by this disease, and which is gradually extending the lines of its activity, embraces a section of country some seven hundred and fifty miles from north to south, and over six hundred miles from east to west.

"The topic mainly responsible for this conference," said Dr. Kerr, "is the prevalence of rabies. This is a large and complex problem, both from the health and the economic view points, and varies in different parts of the country, and has been prevalent in the New England and North Atlantic States. Federal investigation in 1909 showed the disease in three-quarters of the country, but with no case west of the Mississippi, except one in Arizona."

"The problem in the West is complicated by the presence of wild animals," said the Doctor.

Dr. Kerr then called upon the delegates of the various State Boards of Health, and later upon the Federal representatives, for a history of existing conditions, and for discussion of the problem.

Dr. Gundrum, of the California State Board of Health, stated that in 1915 rabies appeared on the cattle ranges of the State. Children could not be sent to school in some of the northern counties. The estimated property loss in California from October 15, 1915, to January 1, 1916, was \$20,000. The quarantine per county affected per month, through cooperation of state and federal officials, is costing \$3,595. The number of fatal cases among human beings during the past twelve months, he stated, had jumped to thirty-four, from five occurring during the year 1914.

The disease, to the most alarming extent, prevails in Modoc, Lassen and Plumas Counties. Of the brains of animals examined during the year 1915, 1,815 gave positive results.

Dr. Laubaugh, State Bacteriologist of Idaho, stated that in 1911 there were but two cases of positive character out of all the animal brains examined, while in 1915 there were forty positive and but thirty-four negatives of the seventy-four animal brains examined.

He stated that the infected area was gradually extending eastward and to the south. The last case reported was from Cassia County, which joins the State of Utah. He said Idaho was doing all it could to exterminate the coyote, but they were handicapped because of lack of money with which to prosecute a more vigorous war against them.

Dr. John J. Sippy, of the Kansas State Board of Health, said that rabies first appeared in that State twenty-one years ago, and was epidemic in 1911. Five fatal cases have been reported during the past five years.

Dr. T. D. Tuttle, State Health Commissioner of Washington, stated that in Seattle alone, during the year 1915, twenty-six heads of animals were examined, out of which seventeen gave positive results. Twenty-seven persons were bitten by suspected animals, seventeen of whom took Pasteur treatment. In the State outside the city of Seattle, thirty-two people took treatment for bites of suspected animals.

Dr. Tuttle further said: "Our first trouble was with the dog owner, who wanted to heal his own dog. Perhaps the cause is the misconception that the rabid animal runs wild, with foamy mouth, instead of being the silent, sulky, piteously weak rabid animal it is, and then we had harmful publicity to some extent that there was nothing like rabies in existence. Of all known diseases of man or the lower animals, it is the easiest, simplest and quickest to eradicate in a given community. The first rabid dog in Seattle ran wild three miles through the city, biting dogs and people. The city health commissioner requested an emergency muzzling ordinance, which, if passed, would have prevented the serious spread in both city and county that followed, but the ordinance did not go through."

Dr. Wyman, of the Wyoming State Board of Health, promised the cooperation of his State, although at this time free from the disease.

Nevada

In April, 1915, a coyote head was sent to the Hygienic Laboratory at Reno, Nevada, from McDermitt, in the northern part of Humboldt County, for examination. The animal had been killed showing signs of rabies. The examination gave positive evidence of the disease. This was the first case of rabies to be confirmed in Nevada.

Another head was examined in May, 4 in June, 1 in July, 3 in August, 14 in September, 24 in November, 43 in December, and some 30 or more in January of 1916.

Of the 140 (approximately) heads examined, there were 95 positive and 45 negative, or the material submitted was unsuitable for examination.

Forty-one persons have taken Pasteur treatment for bites of suspected animals. So far no deaths from the disease, among human beings, have been reported, but the loss of live stock has been conservatively placed at \$100,000.

Elko and Humboldt Counties are, at present, the center of the rabid coyote's activities.

Mr. George Russell, Jr., of the Nevada Rabies Commission, said in addressing the conference: "Nevada is the battleground on which the disease must be conquered, and the unaffected States should assist in stamping out the disease in Nevada."

Dr. Gundrum, of California, said: "States must act individually and collectively; they cannot sit back and wait for federal appropriation." "It is up to the conference," he further remarked, "to see that Governors of affected States secure suitable laws for Boards of Health."

Dr. Lee, of Nevada, expressed the opinion that Governors of States were powerless to relieve the situation at present, and to await the enactment of laws of future Legislatures would be a repetition of "locking the door after the horse was stolen." He advised the levy of a special tax by Boards of County Commissioners, unless debarred by law, to meet the present emergency.

"Death to the coyote," he said, "by trap, gun, mange, or poison, should be encouraged, but all those agencies required money, therefore, to his mind, to *finance* a war of extermination of the coyote was paramount to all other things at this time."

Dr. Beatty, of Utah, asked Dr. Lee how much Nevada was prepared to put up for such a campaign. The Nevada delegate replied: "\$95,000, or practically one dollar per capita for every man, woman and child in the State. This amount, however, is to be used for a cooperative campaign. We do not propose to use this sum for the destruction of the coyote in our State, while meantime we are receiving the overflow of rabid, predacious animals from sister States that are doing nothing to abate the nuisance."

Notwithstanding the anxiety of mind and loss of lives, together with great property loss due to this widespread and still advancing disease, there was not a western State aside from Nevada that was prepared to advance a dollar to control it. The Biological Survey has placed many hunters in the field, has just received \$75,000 with which to continue the work, and in all likelihood will have an additional \$75,000 available for like use on the first of July, 1916.

Dr. W. J. Butler, of Montana, advised the introduction of mange among the coyotes through inoculation of the captured females. He said that method of destruction had been tried in Montana with satisfactory results.

Dr. A. K. Fisher, Chief of the Biological Survey, said: "I am opposed to the mange infection method among coyotes, because of the destruction of their fur, the trade in which is greatly increasing, thereby furnishing inducement to hunters and trappers to kill off the animals."

L. F. Kneipp, U. S. District Forester of Ogden, urged amalgamation of the forces of the Forest Service, Biological Survey, State Game Departments, Red Cross, and women's clubs.

Of all the methods for the elimination of the coyote as a factor in the spreading of rabies, poisoning by strychnine seemed to meet with most favor.

Mr. Sans, of the Biological Survey, recommended that three grains of strychnine be put in a capsule and the capsules enclosed in pieces of raw meat, about the size of a walnut, and scattered on either side of a line where a carcass has been drawn.

DOGS

In these troublous days, the dog is the greatest menace to the human family as the medium for communicating rabies. Of persons bitten by suspected animals, 80 per cent of them have been by dogs, so the consensus of opinion was the dog *must* be muzzled or die. It was generally expressed, "We cannot control the coyote, but we *can* the dog."

The Utah representatives strongly favored interstate quarantine. Most of

the state delegates were willing that the infected area of their State be inhibited from transporting dogs across the border, but objected to the whole State being placed under the ban.

Dr. Lee, of Nevada, courted a state-wide quarantine against the migration of dogs.

The most stringent measures have been recently adopted in Elko County, Nevada. Every dog, whether muzzled or not, is to be shot if seen upon the streets unless held by a leash.

The Nye County, Nevada, Commissioners have recently issued an ordinance that all dogs be shot that are not muzzled.

ROCKY MOUNTAIN SPOTTED FEVER

The question of Rocky Mountain (tick) fever was then taken up by the conference.

At the request of Chairman Kerr, Dr. L. D. Fricks, of the United States Health Service, delivered an address upon this grave, but imperfectly understood, malady.

Dr. Fricks stated that he had discovered the micro-organism which caused this form of spotted fever. He classed it as a low grade of protozoan, saying that it is comparatively large from a microscopic standpoint, bright red in color, surrounded by a dark-blue protoplasm.

Dr. Fricks said he made the discovery while working with some serum which had become infested with foreign coccus. To separate that coccus from the serum, he said he diluted the serum one to ten, and subjected it to a process known as centrifusion, after which he found he had a serum the upper parts of which produced no effect on animals, but the sediment in the tube produced spotted fever whenever injected. In that sediment he isolated the protozoan which causes the disease; that the protozoan is what carries the disease in the veins of its victims.

For nine years the United States Public Health Service has been seeking the underlying cause of the fever caused by ticks. Dr. Ricketts spent six years in the work and Dr. Fricks has been engaged in it three years.

The disease is variously known as spotted fever, Rocky Mountain fever, Rocky Mountain spotted fever, and tick fever, and is practically the same in symptoms and effect as cerebro-spinal meningitis. For a number of years it has been known that it was caused by the bite of the sage tick, but what infected the tick has been the problem to which there was previously no answer.

In some respects the disease is similar to typhus fever, the disease caused by the bite of a louse, which has been the scourge of the European army camps, and which is said to be prevalent in Mexico. Since the tick fever is now in a way to be conquered, physicians attending the conference believe typhus will also be solved.

In the Bitter Root Mountains of Montana, the mortality among human beings ran as high as 90 per cent from spotted fever. In Idaho, Utah, and other regions where the climate is drier, the mortality sinks to 3 per cent.

Dr. Fricks stated that he found the micro-organism in the mouth part of ticks that carry spotted fever, but the discovery having been made only two months ago, he has not yet carried his experiments far enough to determine exactly how the protozoan lives in the body of the tick. Whether an antitoxin will be discovered, Dr. Fricks was unable to say. He thought it would require a long series of experiments to make such a discovery.

Dr. Fricks gave the life history of the tick which produces spotted fever, saying its life period was three years.

He recommended supervised grazing of sheep as the best means of tick eradication. The dipping method of live stock he thought too expensive to be practical. He recommended that States give free poison to farmers for use in exterminating small rodents which carry ticks. He predicted a rapid spread of the disease unless prompt preventive measures were taken.

For 1915, he gave the following statistics of the distribution and prevalence of the disease in the Western States:

<i>Locality</i>	<i>Number of Cases</i>	<i>Fatal Cases</i>
California	2	0
Idaho	359	10
Colorado	14	1
Montana	33	7
Nevada	8	3
Oregon	46	4
Utah	37	3
Washington	6	0
Wyoming	61	9
South Dakota.....	2	0
	<hr/> 568	<hr/> 37

MIGRATORY TUBERCULOSIS (INDIGENT) CASES

Dr. Kerr opened the discussion of the problem. "How to handle the indigent tuberculosis patients." He explained a bill now before Congress providing a federal subsidy for hospitals which will handle that class of cases. He also mentioned a plan for the erection of federal sanitariums for the care of indigent tuberculosis patients, somewhere in the Southwest.

Dr. Woodward very strongly opposed the plan of giving federal aid to any locality for the treatment of tuberculosis patients. He said California and other Southwestern States have their population of indigent tubercular patients because they have advertised their climates as suitable to the health of such persons. He did not think that he, as a taxpayer of the District of Columbia, should be called upon to help provide for such persons.

The opposite view was taken by Dr. Beatty of Utah, Dr. Lyman of Wyoming, Dr. Roberg of Oregon, and Dr. Lee of Nevada. They held that the tubercular patients are a menace to the public health to such a degree that the federal government is warranted in caring for them, when they have not sufficient funds to care for themselves.

Dr. Wyman said the bill would probably help Wyoming, but there was not, at this time, a hospital in the State which would accept a tuberculosis patient.

Dr. Beatty followed with the statement that the remarkable climate of Utah attracted many indigent tuberculosis victims with hope of relief from their malady. "They come here," he said, "without money. We have no place for them. We try to pass them on to Nevada, for the trend of the tuberculosis movement is ever westward. Nevada passes them on to California, and there the Pacific Ocean halts them."

Dr. Beatty, in conclusion, strongly urged the erection of hospitals and sanitariums by the United States Government for the proper care of those hopeless, suffering unfortunates.

RAILROAD SANITATION

Railroad sanitation, the last-named subject in the call for the Conference, was then taken up and very generally discussed.

Dr. T. R. Crowder, one of the principal officials on the sanitation of Pullman cars, discussed the work which confronts general health authorities in keeping conveyances sanitary.

Dr. F. S. Bascom of the Denver and Rio Grande, and Howard Elliott of the Salt Lake Route, took part in the discussion, showing what regulations are already in force as to the sanitation of cars.

All of the railroad representatives agreed that any government regulations would always be made effective instantly, as the roads desired to cooperate fully with the government and the States in maintaining public health.

The foregoing is a brief résumé of the general proceedings of the Conference,

at the conclusion of which the following resolutions were unanimously adopted, as presented by the Committee on Resolutions:

WHEREAS, Rabies is now epidemic in several Western States; and

WHEREAS, The lives of the inhabitants of those States, especially those living in rural districts, are thereby endangered; and

WHEREAS, Large financial loss due to death of valuable stock from this disease is threatened and is occurring in increasing proportion; and

WHEREAS, In the majority of those States there is no present legislation adequately supplying the respective State Boards of Health and other agencies with suitable authority in the establishment of quarantine areas, or funds to carry on a necessary campaign against this disease; and

WHEREAS, The police authority needed must come from the state government, except so far as relates to lands under exclusive federal control;

Therefore be it resolved, That this Conference strongly urges the early adoption by the various States of legislation which will provide the State Boards of Health, and other state agencies, with proper authority to establish quarantine areas against rabies, and with adequate funds for the campaign against the disease. That the authorities of the several States request cooperation from the appropriate federal departments in the establishment of a systematic plan for eradication of rabies, including the calling of conferences from time to time, to promote the efficiency of the work.

This Conference recommends the immediate adoption of the following provisional plan for the limitation and eradication of rabies:

1. That the destruction of predatory (wild) animals devolve on proper State authorities and commercial interests within the State acting in cooperation with the United States Department of Agriculture.

2. That the prevention of rabies among humans, including control of the disease among domestic animals and measures for prophylactic treatment devolve upon the State health agencies cooperating with the United States Public Health Service.

3. That the United States Public Health Service be requested to detail an officer or officers to cooperate with State health agencies in stimulating and coordinating local activities with respect to the limitation and suppression of this disease.

Resolved, That this conference hereby expresses its gratification and appreciation that Dr. Fricks should have made the important announcement of his discovery of the organism causing Rocky Mountain spotted fever at this meeting, and congratulates Dr. Fricks upon his success in this difficult research.

Resolved, That this conference join in an expression of appreciation of the officials, citizens, and press of Utah and Salt Lake City.

On Tuesday, February 2, at 6 o'clock p. m., the members of the conference were given a banquet at the Alta Club. Mayor Mont Ferry presided, welcoming the health officers and guests. He said that Salt Lake City was centering a deep interest in the improvement of its health conditions.

The conference adjourned at 12 m., February 3, 1916. Drs. Kerr and Fricks took their departure for Washington, D. C., at 2 o'clock p. m. of the above date.

Respectfully submitted,

S. L. LEE, *Secretary Nevada State Board of Health.*

Rabies spread so rapidly, and became such a menace to live stock, that the Governor, on the 10th day of February, 1916, called for a meeting of the State Board of Health at the office of His Excellency.

Upon the convening of the board the Governor stated that the object of the meeting was to devise ways and means for the eradication of the coyote and other wild, predatory animals.

In addition to the members of the Board of Health, there were in attendance, and at the request of the Governor, Dr. W. B. Mack, Director of the State Hygienic Laboratory; President Hendrick of the State University, and Attorney-General Geo. B. Thatcher.

The first subject brought up for consideration was that the Board of Health promulgate an order for the muzzling of all dogs throughout the State.

The Attorney-General at once decided that the law did not invest the board with power to issue such radical rules and regulations as the exigency of the case demanded.

Upon this ruling, the Board of Health ceased to be a factor in the premises, and the burden of ridding the State of rabid coyotes, and protecting the public from rabid dogs, fell upon the shoulders of the Rabies Commission and Federal Biological Survey.

From the records of the Hygienic Laboratory it will be seen that Pasteur treatment was given to 35 patients at that institution during the year 1915, the first case having been treated on the 7th day of June of that year. In 1916, 54 cases were treated. The laboratory records fail to show a single death from rabies since the disease made its first appearance in the State, and the records of the State Board of Health show but one well-authenticated case of rabies in the human family. This single exception (reported by Dr. T. H. Harper) was Miles McKinnon, age 60 years, a native of Palisade, Eureka County, Nevada. He was bitten by a rabid dog in Canada, while visiting there, in August or September, 1914. He was immediately taken to Toronto, and given a full Pasteur course of treatment, and dismissed supposedly cured. Two weeks after his discharge from the Pasteur institution he returned to Nevada. On the 17th day of December, 1914, symptoms of rabies developed, and he died in violent convulsions on the 20th of the same month.

PASTEUR TREATMENT AT THE HYGIENIC LABORATORY

Dr. R. H. Mullin, Director of the State Hygienic Laboratory, wrote me as follows on the 8th day of December, 1916:

We treated thirty-five patients in the year 1915, the first patient appearing for treatment on June 7. So far this year we have treated fifty-four patients. I will correct the latter figures if any more appear for treatment. So far as I have been able to determine, there have been no deaths in the treated cases. I do not know of any other reported deaths from rabies than those you mention.

The case Dr. Mullin alludes to was that of a child of 20 months, that died at Amos, Humboldt County, on the 3d day of February, 1916. The certificate of death filed with the local health officer stated that rabies was the cause of death. It was not claimed that the child had been bitten, but that it had been playing with dogs that were supposed to be infected.

The length of time the child lived after the development of the disease (13 days), and the general symptomatology, fail to confirm the diagnosis.

As stated above, 89 patients were given Pasteur treatment at the Hygienic Laboratory during the years 1915 and 1916. Since that was

written, 2 more cases have been treated, bringing the total up to 91.

The patients came from the following counties:

	1915	1916
Churchill	0	1
Elko	19	24
Eureka	0	4
Humboldt	13	9
Lander	0	5
Lyon	0	2
Nye	0	1
Washoe	3	7
White Pine	0	1
	<hr/>	<hr/>
	35	54
Outside the State		2

It will be seen by the above table that from only three counties were patients treated in 1915, while nine counties were inflicted with the disease in 1916.

TYPHOID FEVER

It will be observed that there were 10 deaths from typhoid fever during the year 1916, the same in number that terminated fatally in 1915.

The disease was sporadic in character. Of the 10 cases, 3 were from Washoe, 2 from Esmeralda, and 1 each from White Pine, Churchill, Elko, Lyon, and Nye Counties.

It was epidemical in Elko County only. There the disease broke out in the latter part of October, and developed rapidly. The local health officer for Elko County strongly suspected a "typhoid carrier" as being responsible for the genesis and the spread of the infection. He wrote to the State Board of Health for information and advice as to the best methods of handling the problem. He was advised to have a sanitary survey made of the dairies supplying the town of Elko with milk, also to have Widal tests made from all suspected parties.

At the request of Dr. Worden, Professor Sanford C. Dinsmore, of the Food and Drug Department of the State University, visited Elko, and after a thorough investigation reported his findings, and through whose courtesy I am permitted to publish the following letter:

RENO, NEVADA, December 29, 1916.

DR. S. L. LEE, *Carson City, Nevada.*

DEAR DOCTOR LEE: I have your letter of December 27, and concur in the statement made by Dr. Worden, of Elko, regarding the epidemic of typhoid in the city of Elko.

In my annual report regarding this particular instance, I am stating the facts in this particular case as follows:

One of the first questions asked by the public health officer to whom all contagious diseases must be reported by the attending physician, is the source of milk supply. If several cases are reported on the same dairymen's route, the dairy at once comes under suspicion, and is due for a most careful and searching inspection, and the possible head of the infection.

Recently this department was called upon by the health officer of Elko County to make a thorough investigation of conditions in the town of Elko for the purpose of tracing to its source the typhoid fever infection which at the time had reached an alarming stage and threatened to assume the proportions

of an epidemic. I immediately went to Elko, at once got a complete history of all the cases from the attending physicians, and found that the milk supply in each of the seventeen cases recorded, with one possible exception, was from one common dairy. I then visited the particular dairy in company with Dr. Worden, made a careful survey of conditions attending the production of milk, and obtained samples of water from the well for bacteriological examination. Dr. Worden obtained for me a blood specimen from each individual connected in any way with the dairy, which together with the water sample were sent to the State Hygienic Laboratory, the blood samples to be submitted to the Widal test. The Widal test gave positive reaction on the specimen obtained from the owner of the dairy, who was the person most closely associated in the production and handling of the milk. Further questioning brought out the fact that this party had suffered from typhoid fever about eight years ago, and while apparently had completely recovered, nevertheless the disease germ was still in his system and he was unconsciously infecting the milk supply, directly or indirectly. This is a clear case of a "typhoid carrier," and while such cases are extremely rare, several instances of this nature are on record. The sanitary survey of the dairy revealed certain objectionable features, the most important being the location of the outhouse in reference to the well. The outhouse, with open vault, was located about one hundred and fifty feet from the well, on higher ground, and the character of the subsoil was such as to allow ideal conditions for the well water to become contaminated with sewage matter by seepage. Especially would such contamination occur during the spring or during periods of heavy rains or snow. That the water was highly contaminated with sewage matter was demonstrated by the bacteriological examination, which showed the presence of the B. Coli group of organisms and gave an extraordinary high count of bacteria per cubic centimeter. The water from this contaminated well was used in washing bottles, cans, pails, and other utensils, and as there was no provision for sterilizing with steam, the possibilities of the milk becoming indirectly infected through the water supply are apparent. The dairy farm, which was under lease, was abandoned the day following the public report of our findings, the cows and the equipment moved to more approved quarters, and the business taken up under more sanitary surroundings. The party regarded as responsible for the spread of the disease will have no connection with the dairy in the production and handling of its products until such time as he is pronounced safe by the local physician under whom he is at the present time taking treatment.

At the time the above investigation was made, I also visited the other dairies supplying milk to the city, and in general found them to be in poor condition. A portion of the city is supplied by ranchers in Lamoille Valley, and at those places most unsatisfactory conditions were found to exist. I went over the situation very carefully with each of the dairymen, pointed out what changes should be made in order to produce a safe market milk, and emphasized the necessity of scrupulous cleanliness in all parts of the dairy, and the great importance of installing some method for the adequate sterilization of all utensils used in any way in the handling of milk for public consumption. I had with me the "homemade sterilizer," a galvanized iron tank, made in any convenient dimension with false bottom and tight-fitting cover, the manipulation of which was explained. This piece of apparatus can be obtained at a small cost, and for a small dairy where the expense of installing a steam boiler and sterilizing cabinet is not warranted answers the purpose satisfactorily. The worth of this simple piece of apparatus has been proven by experiments, showing an enormous reduction in the bacteriological count of milk when all the utensils used in its production have been subjected to sterilization for a period of ten or fifteen minutes. The work of the department on the milk supply of Elko has resulted in a cleaner and safer product for the consuming public of that town. At the present time there is under construction a central milk depot which, when completed, will be modern in every respect. The owners of the

plant inform me that they will demand certain requirements as to the sanitation from those of whom they purchase milk, that all milk will be pasteurized before placed on the market, and that up-to-date equipment is to be installed for properly washing and sterilizing bottles used in retail trade. This plant when once in operation will fill a much needed want in that city.

The above is briefly the work of this Department in reference to the particular case in question. If you would like a complete report of the different cases examined, or more detailed information, I shall be very glad to furnish it to you.

Very truly yours,

S. C. DINSMORE.

This particular case so clearly and forcibly presented by Professor Dinsmore, and other cases of kindred character that are constantly making their appearance as a menace to the public health throughout the State, call aloud for such legislation as will add an epidemiologist to the State Department of Health.

POLIOMYELITIS

While many sections of the United States during 1916 were stricken with that scourge of scourges, infantile paralysis, Nevada was almost exempt. Only three cases were reported during the year, one from Elko County and two from Washoe County. All recovered.

In 1915 three cases were reported, and resulted in two deaths. One of the fatal cases was reported from Douglas County and one from Ormsby County.

MEASLES

An epidemic of measles prevails in Lyon County as this report goes to press. Its origin was from a family recently arrived from Idaho. The children started to school, and within two weeks 71 cases were reported, with 1 death.

CONTAGIOUS, INFECTIOUS AND COMMUNICABLE DISEASES REPORTED BY THE LOCAL HEALTH OFFICERS
For the Year Ending December 31, 1915

Counties	Scarlet fever	Small-pox	Diphtheria and membranous croup	Typhoid fever	Whooping cough	Measles	Chick-enpox	Mumps	Pneumonia	Tuberculosis	Acute anterior poliomyelitis	Cerebro-spinal meningitis	Diarrheal diseases of children	Cancer	Puer-peral septicemia	Rocky Mountain (tick) fever	Bronchitis
	C ^a	D ^b	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C
Churchill	51	3			1	0	1		12	7	1		1	2			
Clark	4	0			21	0	6		5	4	1		1	1			4
Douglas	4	0			2	0	0		7	3	1		1	1			
Elko	12	0		21	1	70	32	2	42	15	23	2	63	6	3		162
Esmeralda	1	0			12	0			29	12	5	1	3	4	1		
Eureka				2	1				8	2	1						
Humboldt	4	0				8	1	0	2	2	4						
Lander				2	1	0	2		10	9	1		1	0	2	1	6
Lincoln			1				2		6	2						1	0
Lyon	4	0		2			1		11	4	2			4			
Mineral					1				3	2				1			6
Nye	5	0							58	25	6			1	1	0	1
Ormsby				6	1	0			3	10				0	2	0	1
Storey	12	0					34	89	22	15	1		34	5	1	0	23
Washoe	143	1					116	0	24	6			1	3	2	0	9
White Pine	10	0		56	2	43	0		87	34			0	3	2	0	8
Totals	262	4	81	3	108	290	190	91	312	117	60	3	223	60	38	14	354

^aC—Causes ^bD—Deaths.

REPORT OF STATE BOARD OF HEALTH

BIRTHS ACCORDING TO SEX, COLOR, AND NATIVITY OF PARENTS
For the Year Ending December 31, 1915

Counties	Half-breed—Red and white.....	Red	Black	Yellow	White	Mother foreign, father unknown...	Mother native, father unknown...	Both parents foreign.....	Father native, mother foreign.....	Mother native, father foreign.....	Both parents native.....	Illegitimate	Triplets (sets).....	Twins (pairs).....	Stillbirths	Females.....	Males	Total births

Churchill.....	81	1	1	1	81	14	6	61	4	10	41	1	1	1	1	43	39	82
Clark.....	61	1	1	1	61	7	10	41	4	4	15	1	1	1	27	27	35	62
Douglas.....	33	1	1	1	33	13	4	15	1	4	15	1	1	1	1	15	18	33
Elko.....	163	2	1	2	163	34	16	107	5	16	107	2	1	2	7	72	93	165
Esmeralda.....	81	1	1	1	81	15	14	45	6	14	45	1	1	2	5	32	49	81
Eureka.....	26	1	1	1	26	6	3	15	1	3	15	1	1	1	1	13	13	26
Humboldt.....	98	2	1	2	98	38	11	42	6	11	42	1	1	1	1	42	56	98
Lander.....	31	1	1	1	31	5	4	21	4	2	21	1	1	1	2	14	17	31
Lincoln.....	40	1	1	1	40	1	2	35	1	2	35	1	1	1	1	20	20	40
Lyon.....	72	1	1	1	72	27	6	35	2	6	35	1	1	1	1	31	41	72
Mineral.....	20	1	1	1	20	4	3	12	3	3	12	1	1	1	5	10	10	20
Nye.....	90	1	1	1	90	28	11	47	4	11	47	1	1	1	5	48	42	90
Ornsby.....	27	1	1	1	27	4	4	17	4	4	17	1	1	1	1	11	11	27
Storey.....	24	1	1	1	24	4	1	17	1	1	17	1	1	1	1	13	11	24
Washoe.....	323	4	1	4	317	92	3	173	16	33	173	6	3	3	6	162	171	323
White Pine.....	116	1	1	1	116	29	6	70	8	6	70	1	1	1	7	63	53	116
Total.....	1290	1	2	15	1269	321	134	753	58	134	753	12	1	11	37	610	680	1290

CAUSES OF DEATH (International Classification)
From January 1 to December 31, 1915

GENERAL DISEASES

Typhoid fever.....	10
Rocky mountain spotted (tick) fever.....	3
Malaria	1
Scarlet fever.....	4
Whooping cough.....	3
Diphtheria	1
Croup	2
Influenza	10
Erysipelas	1
Rabies	1
Purulent infection and septicemia.....	9

TUBERCULOSIS (TOTAL)

Tuberculosis of the lungs.....	57
Acute miliary tuberculosis.....	3
Tuberculosis meningitis.....	1
Abdominal tuberculosis.....	1
Tuberculosis of other organs.....	3
Syphilis	2

CANCER (TOTAL)

Cancer of the buccal cavity.....	1
Cancer of the stomach and liver.....	19
Cancer of the peritoneum, intestines, rectum.....	3
Cancer of the female genital organs.....	5
Cancer of the breast.....	2
Cancer of other or unspecified organs.....	8
Other tumors (except of female genital organs).....	1
Acute articular rheumatism.....	1
Diabetes	8
Exophthalmic goitre.....	1
Anemia, chlorosis.....	2
Alcoholism (acute or chronic).....	11
Chronic lead poisoning.....	1
Leuchemia	1

DISEASES OF THE NERVOUS SYSTEM

Encephalitis	1
Simple meningitis.....	6
Cerebrospinal meningitis (undefined).....	3
Cerebral hemorrhage, apoplexy.....	41
Softening of the brain.....	5
Paralysis without specified cause.....	20
Other forms of mental alienation.....	2
Epilepsy	2
Convulsions of infants.....	7
Other diseases of the nervous system.....	2
Acute anterior poliomyelitis.....	2

DISEASES OF THE CIRCULATORY SYSTEM

Acute endocarditis	7
Organic disease of the heart.....	110
Angina pectoris.....	2
Diseases of the arteries, atheroma, aneurysm, etc.....	12
Embolism and thrombosis.....	5
Hemorrhage; other diseases of the circulatory system.....	5

DISEASES OF THE RESPIRATORY SYSTEM

Acute bronchitis.....	4
Chronic bronchitis.....	22
Bronchopneumonia	22
Lobar pneumonia.....	40
Pneumonia (undefined)	55
Pleurisy	1
Pulmonary congestion, pulmonary apoplexy.....	3
Asthma	6
Pneumokoniosis	4
Other diseases of the respiratory system, tuberculosis excepted.....	1

DISEASES OF THE DIGESTIVE SYSTEM

Diseases of the mouth and annexa.....	1
Ulcer of the stomach.....	6
Diarrhea and enteritis (under 2 years).....	18
Diarrhea and enteritis (2 years and over).....	6
Appendicitis and typhlitis.....	3
Hernia	1
Intestinal obstruction.....	10
Other diseases of the intestines.....	2
Cirrhosis of the liver.....	4
Other diseases of the liver.....	4
Simple peritonitis (nonpuerperal).....	20

DISEASES OF THE GENITO-URINARY SYSTEM

Acute nephritis.....	7
Bright's disease	38
Disease of the bladder.....	4
Diseases of the urethra, urinary abscess, etc.....	1
Disease of the prostate.....	1
Uterine tumor (noncancerous).....	1

THE PUERPERAL STATE

Puerperal septicemia.....	1
Puerperal albuminaria and convulsions.....	3
Following childbirth (not otherwise specified).....	1

DISEASES OF THE SKIN

Gangrene	4
Acute abscess.....	4
Other diseases of the skin and annexa.....	1

DISEASES OF EARLY INFANCY

Premature birth.....	24
Congenital debility, "atrophy," "marasmus," etc.....	20
Stillbirths	37

OLD AGE

Senility	32
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AFFECTIONS PRODUCED BY EXTERNAL CAUSES

Suicide by poison.....	8
Suicide by hanging or strangulation.....	1
Suicide by firearms.....	17
Suicide by cutting or piercing instruments.....	2
Other suicides.....	2
Poisoning by food.....	1
Other acute poisonings.....	2
Burns (conflagrations excepted).....	9
Accidental drowning.....	9
Traumatism by firearms.....	10
Traumatism by fall.....	7
Traumatism in mines and quarries.....	21
Traumatism by machines.....	1
Railroad accidents and injuries.....	22

Automobile accidents and injuries.....	3
Injuries by other vehicles.....	5
Injuries by animals.....	5
Starvation	3
Excessive cold.....	1
Excessive heat.....	1
Lightning	1
Electricity (lightning excepted).....	2
Homicide by firearms.....	14
Homicide by cutting or piercing instruments.....	3
Homicide by other means.....	1
Fractures (cause not specified).....	3
Suffocation, mostly of infants.....	7

ILL-DEFINED DISEASES

Cause of death ill-defined.....	20
Cause of death not specified, or unknown.....	18
Total deaths from all causes.....	990

MARRIAGE LICENSES

Marriage licenses issued by the Clerks of the several Counties of the State from January 1 to December 31, 1915, inclusive, were as follows:

Churchill County.....	34
Clark County.....	40
Douglas County.....	14
Elko County.....	79
Esmeralda County.....	49
Eureka County.....	8
Humboldt County.....	68
Lander County.....	13
Lincoln County.....	15
Lyon County.....	31
Mineral County.....	23
Nye County.....	68
Ormsby County.....	37
Storey County.....	15
Washoe County.....	308
White Pine County.....	74
Total	871

MARRIAGE LICENSES

Marriage licenses issued by the several County Clerks of the State from January 1 to December 31, 1916, inclusive, were as follows:

Churchill County.....	24
Clark County.....	74
Douglas County.....	47
Elko County.....	76
Esmeralda County.....	49
Eureka County.....	10
Humboldt County.....	95
Lander County.....	18
Lincoln County.....	22
Lyon County.....	23
Mineral County.....	16
Nye County.....	51
Ormsby County.....	47
Storey County.....	14
Washoe County.....	347
White Pine County.....	88
Total	969

REPORT OF STATE BOARD OF HEALTH

BIRTHS ACCORDING TO SEX, COLOR, AND NATIVITY OF PARENTS
For the Year Ending December 31, 1916

Counties	Total births.....	Males	Females.....	Stillbirths	Twins (pairs)	Illegitimate	Both parents native.....	Mother native, father foreign.....	Father native, mother foreign.....	Both parents foreign.....	Mother native, father unknown.....	Mother foreign, father unknown.....	White	Yellow	Black	Red	Half-breed—White and red.....
Churchill	70	36	34	—	1	—	55	3	1	10	—	—	69	1	—	—	—
Clark	57	27	30	—	—	—	46	1	4	6	—	—	56	—	—	—	—
Douglas	23	17	12	—	1	—	11	4	1	12	—	—	29	—	—	—	—
Elko	175	86	89	1	3	2	112	7	9	15	1	—	167	2	1	6	—
Emeralda	60	32	28	—	—	—	40	4	1	15	—	—	59	—	—	—	—
Eureka	15	8	7	—	—	—	7	4	—	4	—	—	15	—	—	—	—
Humboldt	112	52	60	1	2	—	66	7	3	32	—	1	108	4	—	—	—
Lander	22	14	8	—	—	—	11	2	—	9	—	—	21	1	—	—	—
Lincoln	46	22	24	2	—	—	38	—	4	28	—	—	46	—	—	—	—
Lyon	73	44	29	1	2	—	38	4	1	5	—	—	72	1	—	—	—
Mineral	23	13	10	—	—	—	15	3	—	2	—	—	22	1	—	—	—
Nye	112	68	44	—	4	—	55	12	8	38	—	—	108	1	—	—	3
Ormsby	27	15	12	—	1	—	20	2	—	3	1	—	23	2	—	2	—
Storey	30	17	13	1	—	—	22	1	—	—	—	—	30	—	—	—	—
Washoe	340	175	165	6	3	10	192	31	18	85	1	—	331	6	2	1	—
White Pine	155	72	83	1	2	9	96	15	7	35	—	—	150	4	1	—	—
Total	1346	698	648	14	20	25	824	100	52	334	7	2	1306	24	5	8	8

DEATHS ACCORDING TO AGE, SEX, COLOR, NATIVITY, AND SOCIAL CONDITION
For the Year Ending December 31, 1916

[illegible]

CONTAGIOUS, INFECTIOUS AND COMMUNICABLE DISEASES REPORTED BY THE LOCAL HEALTH OFFICERS
For the Year Ending December 31, 1916

Counties	Scarlet fever		Small-pox		Diphtheria and membranous croup		Typhoid fever		Whooping cough		Measles		Chick-enpox		Mumps		Pneumonia		Tuberculosis		Acute anterior poliomyelitis		Cerebro-spinal meningitis		Diar-rheal diseases of children		Cancer		Puer-peral septicemia		Rocky Mountain (tick) fever		Bronchitis		
	C ^a	D ^b	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	
Churchill	4	0			3	1	6	0	4	0							7	4	3	1															
Clark	2	0			1	0	1	0							1	0	2	18	3	8															
Douglas	8	0			1	0							7	0			4	2	3	3															
Elko	2	0	1	0	20	1					3	0			11	1	13	4	3	1	1	0			1	0	2	1					2	1	1
Emeralda					2	2											7	7	2	1					2	2	2								
Eureka																																			
Humboldt	30	0	5	0	5	0	7	2					5	0			20	7	3	3			1	0			2				14	2	6	1	
Lander	2	0			6	0					1	0					10	6	2	2					1	1					1	1	1	0	
Lincoln					3	1											5	3	3	5					1	0	2	1			2	0			
Lyon									57	0	79	1					1	0	2	1															
Mineral																	4	3	1	1															
Nye	10	0			7	1	1	0	1	1	2	0	13	0	1	1	14	12	9	9	5	5	1	1			2	2	1			13	1	1	
Ormsby											6	0	49	0			10	9	5	5			2	2	6	0	4	4		1	0			2	1
Storey	2	0															3	3	3	1															
White Pine	78	1			20	3	4	0	27	0	8	0	16	0			48	28	29	23	2	0	1	0	2	0	15	15			5	0	2	2	
White Pine					4	1							4	0			9	9	10	8					10	9									
Total	138	1	6	0	72	10	19	2	89	1	99	1	94	0	14	2	183	103	100	74	3	0	6	3	23	12	36	34	3	0	20	3	23	8	

^aC—Causes ^bD—Deaths.

CAUSES OF DEATH (International Classification)

From January 1, to December 31, 1916

GENERAL DISEASES

Typhoid fever.....	10
Rocky mountain (tick) fever.....	3
Measles	1
Scarlet fever.....	1
Diphtheria	2
Influenza	2
Erysipelas	1
Purulent infection and septicemia.....	12
Rabies (?)	1
Mumps	2

TUBERCULOSIS

Tuberculosis of the lungs.....	65
Acute miliary tuberculosis.....	1
Tuberculosis meningitis.....	2
Abdominal tuberculosis.....	2
Tuberculosis of other organs.....	2
Syphilis	1
Pneumokoniosis	7

CANCER

Cancer of the buccal cavity.....	4
Cancer of the stomach and liver.....	17
Cancer of the peritoneum, intestines, etc.....	4
Cancer of the female genital organs.....	4
Cancer of the breast.....	2
Cancer of other unspecified organs.....	3
Other tumors (except of female genital organs).....	2
Acute articular rheumatism.....	1
Chronic rheumatism and gout.....	2
Diabetes	11
Exophthalmic goiter.....	1
Leuchemia	2
Anemia, chlorosis.....	3
Alcoholism (acute or chronic).....	9
Sarcoma	3

DISEASES OF THE NERVOUS SYSTEM

Simple meningitis.....	3
Cerebrospinal meningitis.....	3
Locomotor ataxia.....	1
Cerebral hemorrhage, apoplexy.....	38
Softening of the brain.....	7
Paralysis without specified cause.....	11
Other forms of mental alienation.....	2
Epilepsy	5
Convulsions (nonpuerperal)	1
Convulsions of infants.....	3
Other diseases of the nervous system.....	1

DISEASES OF THE CIRCULATORY SYSTEM

Pericarditis	1
Acute endocarditis.....	13
Organic diseases of the heart.....	104
Angina pectoris.....	5
Diseases of arteries, atheroma, aneurism, etc.....	21
Embolism and thrombosis.....	4
Hemorrhage; other diseases of the circulatory system.....	7

DISEASES OF THE SKIN

Gangrene	4
Acute abscess.....	3

REPORT OF STATE BOARD OF HEALTH

DISEASES OF THE RESPIRATORY SYSTEM

Diseases of the larynx.....	1
Acute bronchitis.....	7
Chronic bronchitis.....	1
Bronchopneumonia.....	11
Lobar pneumonia.....	50
Pneumonia (undefined).....	42
Pleurisy.....	1
Asthma.....	1
Pulmonary emphysema.....	1

DISEASES OF THE DIGESTIVE SYSTEM

Diseases of the mouth and annexa.....	1
Ulcer of the stomach.....	4
Other diseases of the stomach (cancer excepted).....	7
Diarrhea and enteritis (under 2 years).....	14
Diarrhea and enteritis (2 years and over).....	5
Appendicitis and typhlitis.....	8
Hernias.....	2
Intestinal obstructions.....	8
Other diseases of the intestines.....	2
Hydatid tumor of the liver.....	1
Cirrhosis of the liver.....	7
Other diseases of the liver.....	1
Simple peritonitis.....	15

DISEASES OF GENITO-URINARY SYSTEM

Acute nephritis.....	8
Bright's disease.....	34
Other diseases of the kidneys and annexa.....	1
Calculi of the urinary passages.....	1
Diseases of the bladder.....	2
Diseases of the prostate.....	2
Cysts and other tumors of the ovary.....	1
Salpingitis and other diseases of female genital organs.....	2

AFFECTIONS PRODUCED BY EXTERNAL CAUSES

Suicide by poison.....	6
Suicide by hanging or strangulation.....	1
Suicide by drowning.....	1
Suicide by firearms.....	20
Suicides by cutting or piercing instruments.....	2
Other suicides.....	2
Poison by food.....	8
Other acute poisonings.....	2
Conflagrations.....	1
Burns.....	6
Absorption of deleterious gases (conflagration excepted).....	1
Accidental drowning.....	7
Traumatism by firearms.....	4
Traumatism by fall.....	5
Traumatism in mines and quarries.....	31
Traumatism by machines.....	2
Railroad accidents and injuries.....	16
Automobile accidents and injuries.....	7
Landslide and other crushing.....	4
Starvation.....	1
Excessive cold.....	2
Electricity (lightning excepted).....	1
Homicide by firearms.....	22
Homicide by cutting or piercing instruments.....	1
Homicide by other means.....	5
Fractures (cause not specified).....	8
Other injuries.....	1

MALFORMATIONS

Hydrocephalus.....	1
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ILL-DEFINED DISEASES

Cause of death ill-defined.....	25
Cause of death not specified, or unknown.....	31
Ill-defined organic disease.....	1
Sudden death.....	1

THE PUERPERAL STATE

Other accidents of labor.....	1
Puerperal septicemia.....	2
Puerperal albuminaria and convulsions.....	1
Puerperal phlegmasia alba dolens, embolus, sudden death.....	1

DISEASES OF EARLY INFANCY

Premature births.....	22
Stillbirths	14
Congenital debility, atrophy, marasmus, etc.....	23
Lack of care.....	1

OLD AGE

Senility	31
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